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2 June 1982

# Worldwide Report

TELECOMMUNICATIONS POLICY,  
RESEARCH AND DEVELOPMENT

No. 220

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2 June 1982

WORLDWIDE REPORT  
TELECOMMUNICATIONS POLICY, RESEARCH AND DEVELOPMENT

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## WORLDWIDE AFFAIRS

### NICARAGUA TO JOIN SPUTNIK COMMUNICATIONS SYSTEM

PA201718 Managua Domestic Service in Spanish 000 GMT 20 May 82

[Text] (Marne Serrano), development director of Nicaraguan Telecommunications and Postal Services, TELCOR, has reported that Nicaragua will make a grand entrance into the space age through a plan to join the Sputnik satellite system. The telephone communications network to Latin America and the rest of the world will be expanded by using the Sputnik satellite system, which the USSR has been developing during the last 20 years. (Serrano) added that the project comes under the agreements signed by Commander Daniel Ortega, coordinator of the government junta, during this recent visit to the USSR. He said that we will be able to communicate more easily with the European socialist countries, as well as with Africa and Asia, through the inter-Sputnik system and that Nicaragua will become a leader in Latin America in the field of communications.

This will be a giant step in Nicaragua's history because we will jump from animal and waterborne transportation, which is still used by the inhabitants of our country, to the use of ultramodern communications technology. We will be able to cross the Atlantic and Pacific oceans in a matter of seconds to relay reports and communicate with [words indistinct], he said. Soviet technicians will be arriving in Nicaragua next month to set the plan into motion. The inter-Sputnik landbased station will be located at the Nejapa lagoon and will begin operations in late 1983.

CSO: 5500/2236

## WORLDWIDE AFFAIRS

### BRIEFS

ANGOLA, CUBA RADIO, TV AGREEMENT--Luanda, 1 May (ANGOP)--The People's Republic of Angola and the Republic of Cuba signed a cooperation agreement in Luanda on Friday. In accordance with the agreement, the two countries will exchange political, cultural and socioeconomic programs. This accord, signed for Angola by Rui de Carvalho and Eugenio Romulo, directors general of the national radio and the Angolan People's Television, respectively, and for Cuba by Jose Ridriguez Iianoras, vice president of the Cuban Institute for Radio and Television, is aimed at broadening the knowledge and informative capabilities of the Angolan and Cuban peoples. It becomes effective in 1983. Miguel de Carvalho (Wadijimbi), director of the Department of Information and Propaganda of the MPLA-Labor Party's Central Committee, was present at the ceremony. [Text] [AB011245 Luanda ANGOP in French 1140 GMT 1 May 82]

INDIA, GDR EXCHANGE AGREEMENT--India and the German Democratic Republic are to exchange information on the preparation of 5-year and annual plans. They will also exchange their experiences in manpower planning, industry and agriculture. Under an agreement signed in Berlin, the two countries will also exchange information on the application of electronic data processing. [Text] [Delhi Domestic Service in English 0240 GMT 25 Apr 82 BK]

CSO: 5500/2232



ADVISER VISITS COMMUNICATIONS EQUIPMENT FACTORY

Dacca THE BANGLADESH OBSERVER in English 6 May 82 pp 1, 8

[Text] Rear Admiral Mahbub Ali Khan, Deputy Chief Martial Law Administrator and Adviser for Ministry of Communication on Wednesday asked the Research and Development Wing of the Telephone Shilpa Sangstha to prepare a plan with concrete suggestions for the improvement and innovations in the present production system says a PID handout.

He also directed them to make necessary blueprint for electronic switching system for future use in the country.

The DCMLA and Adviser visited the Telephone Shilpa Sangstha on Wednesday and reviewed the workings of the Sangstha in a meeting with the Managing Director and other officials.

He foresaw that even if electronic system is introduced the factory will be the Centre of production and development of the new system without any loss of employment to the present workers, since very few items of production will need to be changed.

The Adviser found quite a good number of females and blind personnel employed by the TSS. He asked the management to employ still larger number of female workers as the type of job is better suited to their temperament. He also asked them to increase the pay and emoluments of blind workers.

The Telephone Shilpa Sangstha which employs about 1100 personnel, is engaged in manufacturing telephone line units, telephone sets and components of telephone exchange for the country. The target for production of telephone sets and line units for the current financial year are 17000 sets and 11,000 line units of which 13,512 sets and 8200 line units have already been produced till the end of April last. It may be mentioned here that 70 per cent of the equipment are made or processed locally and only 30 percent are imported.

The adviser was pleased to know that production efficiency of the TSS work force was on average 116 per cent during the financial year of 1980-81. He was also pleased to know that there exists incentive premium system to ensure high productivity of international standard and quality.

The TSS is also processing an export order worth Taka 10 lakh. The first consignment of equipment is now ready for shipment to West Germany. So far out of 1.04,000 line units produced by TSS about 80,000 line units have been installed in different exchanges in the country and another 14000 lines are under installation.

The DCMLA asked the TSS management to undertake the construction work of workers' housing complex as the land for the purpose had already been acquired. He assured all necessary government assistances in balancing and modernising of the factory as it requires to play a very significant role in providing telecommunication facilities to the rural areas, the development of which is the priority of the present government.

Earlier, on his arrival at the Telephone Shilpa Sangstha, the DCMLA was taken round the various sections of the factory by the managing director of the Sangstha.

CSO: 5500/7138

## BANGLADESH

### BRIEFS

PHONE EXCHANGES COMPLETION DATE--The DCMLA and Adviser for Ministry of Communication Rear Admiral Mahboob Ali Khan has directed the Telegraph and Telephone board to expedite expansion of telephone facilities all over the country. He has laid down time table for completion of the following seven telephone exchanges as follows: Nilkhet exchange with 10,000 lines--December 16, 1982; Gulshan exchange with 2,000 lines--December 15, 1982; Mongla exchange with 400 lines--May 30, 1982; Mowlavibazar exchange with 400 lines--May 7, 1982; Sreemangal exchange with 400 lines--December 1, 1982; Mymensingh exchange with 1000 lines--July 1, 1982 and Saidpur exchange with 600 lines--August 1, 1982. The DCMLA has also directed the T&T Board to ensure speedier and effective repairs and maintenance of existing telephone lines of Dacca and other metropolis which have lately been deteriorated. He has asked them to strengthen the complaint and enquiry team in each exchange and to arrange special squad to work round the clock to rectify defective telephones. The new 2000 lines automatic telephone exchange (PABX) now being installed at the Bangladesh Secretariat for the exclusive use of the different ministries and offices of the government is expected to be commissioned by the middle of next month. When commissioned it will help spare about 1700 lines from Mogbazar exchange for use by public. The T&T Board has also taken up a programme to provide nationwide dialing system by the end of next year. [Text] [Dacca THE NEW NATION in English 30 Apr 82 pp 1, 8]

CSO: 5500/7137

## SUCCESSFUL TESTS ON NEW SATELLITE REPORTED

### Radio and Television Networking

Bombay THE TIMES OF INDIA in English 25 Apr 82 p 1

[Text] Bangalore, April 24 (UNI). Indian space scientists today confirmed the functioning of the telecommunications, and radio and television networking service payloads of the country's first operational multipurpose satellite, INSAT-1A.

The Indian Space Research Organisation announced here that its master control facility (MCF) at Hassan had successfully confirmed the functioning of ten of the 12 telecommunications transponders and one of the two TV broadcast transponders.

The third payload of the satellite, the very high resolution radiometer (VHRR) instrument, to be used for meteorology is still to be tested.

INSAT-1A, the first of the two multipurpose satellites, represents the country's first step towards implementing operational space systems for identified socioeconomic objectives and national requirements. INSAT-1B is expected to be launched in July next year.

### Solar Sail Snag

INSAT-1A, which was plagued by problems ever since its launch is now rid of all major snags and but for a stuck solar sail, used to balance it in space, is expected to be ready for operation by mid-May.

The ISRO announced here that the functioning of the No 1 TV broadcast transponder was confirmed by transmitting a colour TV test pattern at 1230 hours IST.

The colour TV test pattern was transmitted to the spacecraft from the MCF at 6GHZ and received also at MCF at 2.5 GHZ. The transponder was kept on for about four hours.

The ISRO said radio frequency testing of transponders on board INSAT-1A was continuing and all 12 telecommunications transponders were now on. Testing had confirmed the functioning of ten of the 12 transponders.

The release said the MCF mission control team also successfully transmitted through the ultra high frequency (400 MHZ) C-band data relay transponder. Further radio frequency testing of the transponder was continuing as part of the overall spacecraft on-orbit performance checkout preparatory to getting the spacecraft ready for operational use. Formal on-orbit performance checkout testing will commence next week.

### Earth's Image Beamed

Bombay THE TIMES OF INDIA in English 26 Apr 82 p 1

[Text] Bangalore, April 25. The mission team at the master control facility (MCF) at Hassan in Karnataka has verified the functioning of the visible channel of the very high resolution radiometer (VHRR).

The first image of the earth's full disc was received at 1 p.m. today from the meteorological earth imaging instrument aboard INSAT-1A. Subsequently, the VHRR was commanded to generate six sector scans.

Preparations are now on to test the working of the infrared channel of the VHRR instrument.

UNI adds: Now all is set for a formal on-orbit performance checkout of INSAT-1A with the beaming of the image by the VHRR instrument.

Once the on-orbit performance checkout is over, next week the satellite would be ready for being declared operational by mid-May, the Indian Space Research Organisation said here today.

Indian space scientists have already confirmed the functioning of the telecommunications and radio and television networking service payloads of the triple function satellite. The satellite is to start radio networking in June and telecasting of programmes from August 15.

Today's manoeuvre by the Hassan mission control team to successfully command the satellite to generate the image of the earth's full disc through the visible channel of the VHRR instrument is very significant in view of the stuck solar sail. The sail is to be used for offsetting solar pressure on the asymmetrical solar array, the main source of power generation for the satellite and thus keep it balanced in space.

The VHRR mission of the system requires the spacecraft to be held precisely during frame imaging as well as between frames. However, despite the solar sail problem, space scientists have been able to command the satellite to generate the image of earth's disc in the visible channel.

INSAT-1A is the first at the two first generation satellites to continue the Indian National Satellite system. Together they will handle 8000 long-distance telephone calls, broadcast Radio and TV programmes and send half-hourly weather data.

The Hassan MCF has already tested successfully the working of the ultra-high frequency C-band data relay transponder for relay of meteorological, hydrological and oceanographic data from unattended land and ocean-based data collection-cum-transmission platforms. The working of the C-band antenna, the ear of the satellite and the C/S band transmit antenna have been confirmed with the transmission and receipt of colour TV signals on April 23.

CSO: 5500/7128

## EDITORIAL TELLS BENEFITS OF NEW SATELLITE

Madras THE HINDU in English 24 Apr 82 p 8

[Editorial: "Taking the Best Out of INSAT"]

[Text]

FOR A WHILE it looked as if India's first full-fledged telecommunications satellite, INSAT-1A, launched from Cape Kennedy in the United States on April 10, would turn out to be a cripple. Some commentators had written off the enterprise; the vital C-Band antenna had failed to open out and there was fear about the failure of the immensely prestigious and expensive undertaking. Well, after more than 10 days of tension, the major snags have been set right — the 1150-kg. satellite has moved into its final geostationary slot and the essential transmitter system triggered into operating position by long-distance commands from the Master Control Facility at Hassan, in Karnataka. Because of the shroud of secrecy placed over the space shot and the subsequent manoeuvres, it is not clear where matters initially went wrong. Anyway, Indian and American scientists merit cheers for working hand in hand to make the delicate venture successful. There is still a snag in the solar sail but this appears to be a trifle compared to the technical problems that have been overcome.

Apart from the small-sized Rohinis launched from Sriharikota by Indian rockets, Bhaskara I and II and Aryabhata were shot into space from Soviet launching pads. APPLE, the partially experimental communications satellite, used the Ariane rocket developed by the European Economic Community. INSAT-1A was launched by an expendable Delta vehicle and INSAT-1B is slated to be hurled into position in the latter half of 1983 by the American space shuttle. INSAT-1A is the first civilian operational geostationary satellite system to combine telecommunications, television and radio broadcasting, meteorological imaging and data

relay functions. This spacecraft is the primary unit and the one to follow will be used as a back-up and will provide additional telecommunication link capacity. Even without its own satellites, India is not an amateur in space applications programmes. An internationally applauded project was the Satellite Instructional Television Experiment — SITE — conducted in 1974-75 by the Indian Space Research Organisation along with the Ministry of Information and Broadcasting and the National Aeronautics and Space Administration, U.S., using the American satellite, ATS-6. This involved the deployment of 2,500 community television sets in six backward areas in Rajasthan, Madhya Pradesh, Andhra Pradesh, Karnataka, Orissa and Bihar. The second was STEP — the satellite telecommunications experiment project — in 1976-78 using the Franco-German Symphonie. A notable feature of STEP was the relay of cricket matches which India played in Pakistan. It was the evaluation of the SITE and the STEP experiments that led to the Government of India going in for the INSAT programme. Incidentally, unlike as in the nuclear research programme, cooperation in space experiments has been readily forthcoming from the Russians, the West Europeans and the Americans.

Now that INSAT is all set to function in the next few weeks, what are the services it will supply? The telecommunications component will provide 8,000 two-way long-distance telephone circuits potentially accessible from any part of the country. The meteorological component will provide round the clock, half hourly observations of the weather sea surface and cloud-top temperatures and snow cover — in addition to early warnings of impending

disasters like cyclones and floods. The third component is set to provide direct TV broadcasting to special community receivers and for nationwide coverage in one step. The P & T Department is to establish 31 earth stations, 28 fixed and three transportable, to make use on the ground of the spacecraft's capabilities. Already seven stations are in use with space-segment capacity leased from INTELSTAT. The Oil and Natural Gas Commission is setting up its own facilities for use in the offshore exploration areas. For those who may frown at the cost of the satellite, the meteorological package alone is capable of giving such huge benefits to the nation's agriculture-dependent economy as to defray the expenses. The life span of the satellite is cited as seven years on the basis that all components perform in tune with the design and the initial projections are to make the satellite pay for itself in four years. It is true that the ground facilities already established are not equipped to make full use of INSAT. It is not possible to tailor demand and supply to perfection in such a sophisticated field. Alignments will take time especially since this is a launch into a new telecom society. The ethos for progress has to be different in that the telephone connection and the TV aerial should no longer be status symbols.

CSO: 5500/7130



## PANEL FAVORS PTI FOR INTERNATIONAL NEWS COVERAGE

Bombay THE TIMES OF INDIA in English 29 Apr 82 p 9

[Text]

NEW DELHI, April 28 (PTI)

THE Press Trust of India, which is ahead of other Indian news agencies in international news coverage, "is the obvious choice" for expansion of operations abroad, the second press commission has said in its report now under consideration of the government of India.

Explaining the rationale behind its recommendation in this regard, the commission has pointed out that the cost of maintaining Indian correspondents abroad, of their travel within the country and the region assigned to them, and the cost of transmission are so high that no Indian news agency can finance its foreign operations from its own revenues, including revenue from the sale of its news service abroad. Assistance from the government on a substantial scale is, therefore, inescapable.

## AMERICAN EXAMPLE

"Given the constraint of the country's resources of foreign exchange, it is evident that it will not be possible for the government to assist more than one agency to expand the number of bureaux abroad for the collection and dissemination of news.

"Even among the developed countries, it is only in the case of the U.S. that there are two international news agencies—and one of them is in the financial doldrums. It is unnecessary and will be imprudent for India to emulate the U.S. in this matter."

"We welcome the recognition by the government in recent years, belated though it is, of the inescapable need to meet part of the cost of maintaining news agency correspondents abroad. The external affairs ministry in 1980 evolved a formula under which it meets part of the total expenditure, which at present ranges from Rs. 3,00,000 to Rs. 4,00,000 per new post," the commission has added.

"We recommend that this policy be continued and further liberalised so as to fill up the yawning gaps in the coverage of Africa and Latin America and large parts of Asia."

It was desirable that news concerning India and its perception of events in the sub-continent and in the world and speed to other countries, and that should be conveyed with competence

news and interpretation of events in other countries should be available to Indian readers from Indian correspondents rather than through foreign news agencies, which had their own perceptions and prejudices, it said.

The commission has also recommended "a comprehensive look" by the government at the structure of overseas communication rates. It was urged before the commission that the rates charged by the overseas communication service (OCS) were high.

Under the press bulletin service (PBS) for transmission via satellite, for instance, there was a concessional rate of Rs. 8,000 per month payable at the Indian end for a 12-hour two-way satellite link with any part of the world. However, the OCS offered this rate only in respect of links with countries, which gave a reciprocal concession.

This policy had in effect been helping the western agencies only. "The insistence on reciprocity appears to call for an immediate review," the commission said.

In recommending PTI for expansion of operations abroad, the commission had taken note of a plea on behalf of the United News of India that in the interest of competition it might be allotted certain regions—for example South-East Asia and West Asia—for exclusive operations while PTI might cover other parts of Asia, Africa, the Americas and Europe.

## REASONS LISTED

According to the commission report, while to some of its members the formula appeared reasonable, the majority viewed international coverage by two Indian news agencies as impracticable on several grounds.

First, an Indian newspaper desiring to have coverage of world affairs by Indian news agency correspondents will have to subscribe to the services of both the news agencies (the number of newspapers which do so at present is only 92 out of 454 dailies which subscribe to any wire news agency).

Second, each agency will be able to offer to potential subscribers abroad only its own limited coverage of international news.

Third, there was hardly any competition involved in the coverage of different regions of the world by two agencies.

## NEXT GENERATION SATELLITES IN PREPARATION

Calcutta THE STATESMAN in English 5 May 82 p 16

[Text]

NEW DELHI, May. 4.—While INSAT-1 is expected to be operational in a short while, preparations are going on for configuration of India's next generation satellite.

The second generation satellite, it is envisaged, will be much larger than the first and in all probability will not be multi-purpose. In consonance with the new trend in satellite communication systems, India is expected to opt for simpler, smaller earth installations working with larger satellites.

Though its chief utility will be for telecommunications, the new satellite could be used for data communication, rooftop communication, facsimile and electronic mail, video conferencing, computer network and specialized leased services.

The rural telecom service could be provided by erecting in the rural areas low cost small earth terminals. This would help take the benefits of satellite communication technology to the village doorsteps. Rural public call offices in accessible hamlets would become a distinct probability.

Similarly, the growing data traffic could be channelled through the satellite. Rooftop communication services would seem to be the answer to the long cry for higher reliability and speedier communication, specially in multi-storeyed commercial structures. In fact, a satellite derived circuit it is felt, could be put to a number of uses for a number of applications requiring point to point linkage or point to multi-point transmission.

India would get a glimpse of the uses of the satellite system when INSAT-1A becomes operational. One could expect efficient links between main switching centres of the Posts and Telegraphs national network, main and distant primary switching centres and main and inaccessible areas.

The meteorological component (which, incidentally, could be

separated in the next generation satellite) will help collect and transmit meteorological, hydrological and oceanographic data from unmanned remote automatic data collection platforms to a central data processing centre. It will also provide half-hourly synoptic observations of weather systems, including cyclones, sea surface and cloud temperature water bodies and snow cover mapping the whole of India

as well as adjoining sea and land areas.

INSAT-1 is designed to provide two direct television broadcast channels over the entire country. Special community receivers in the rural areas can directly receive TV broadcasts from the satellite. Also, nationwide coverage by All India Radio, disaster warning and standard time and frequency dissemination are some of the other services to be expected from INSAT.

But all this conceals a lot of painstaking effort. The job of locating the earth stations demanded time and reasonable precision. Since the signals from the satellite are usually feeble, the sites chosen should be quiet to avoid interference. About 200 prospective sites had to be visited before choosing the 28 stations.

An earth station itself consists of more than a dozen sub-systems. Nearly 60% of the equipment is indigenous, including some sophisticated electronic ones. Only two sub-systems used in the final stages of transmitting and receiving—high power amplifier and lower noise amplifier—were imported.

However, since then through technology transfer, it is now possible to raise the indigenous component in the future earth stations to 90%. The progress in indigenous sophisticated equipment is because of the efforts on engineers of the Posts and Telegraphs Department who used to hold regular meetings with manufacturers providing them detailed technical inputs and in some cases even managerial guidance.

## COMMUNICATIONS EQUIPMENT PRODUCTION PLANS REPORTED

New Delhi PATRIOT in English 29 Apr 82 p 6

[Text]

A massive programme to produce and import communication equipment has been taken up in the country which would change the face of India in the coming years. Communication Minister

C M Stephen said in the Rajya Sabha on Wednesday, reports P.T.I.

Replying to an over four hour debate on the working of the Ministry, Mr Stephen said the present capacity for manufacturing telephone instruments was only 5.5 lakh a year but the demand was projected to go up to 19 lakh by the end of the decade.

To meet this increasing demand the country was also going in for collaboration arrangements wherever necessary, such arrangements were nearing finalisation, the Minister told the House.

He said the country was importing multi-axis radio equipment from abroad to provide

communication facilities in hilly and other difficult terrains. Eighteen of them would be furnished with these facilities within three years.

Several ruling party members in the Rajya Sabha on Wednesday joined the Opposition in complaining against the inefficient working of the telecommunication and postal services reports UNI.

Initiating a debate on the working of the Communications Ministry, Mr Dipen Ghosh (CPI-M) pleaded for a fair deal to the extra-departmental employees of the postal services.

Mr P N Sukul (Cong-I) said the telephone and telegraph services needed drastic improvement. He suggested introduction of a scheme of 'work incentives' to improve the efficiency of the staff.

CSO: 5500/7133

## COMMISSION PROPOSES GREATER ROLE FOR PRESS COUNCIL

Bombay THE TIMES OF INDIA in English 28 Apr 82 p 6

[Text]

NEW DELHI, April 27 (PTI).

THE press commission has proposed an expanded role for the press council in keeping with its view that freedom of the press is not just the right of newspapers to publish news and views but the right of the citizen to information.

In this, it goes further than its predecessor — the first press commission — that the council should safeguard freedom of the press and ensure maintenance of high standards of public taste by the press.

The commission specifically sees the press council's role in upholding the citizen's right of reply and access to the press as well as the citizen's right to privacy, and in overseeing the

observance of codes of advertising ethics.

It would also like to have representation for the press council in the boards of management of news agencies and on the proposed newspaper development commission.

The commission considers the press to be a public utility, whose services should be available to citizens for exercise of their fundamental right to freedom of speech and expression on a non-discriminatory basis subject to availability of space and other relevant consideration.

It wants the press council, therefore, to be empowered to look into complaints of arbitrary and 'mala fide' denial of access to the press.

It wants the press to be barred from

activities that amount to physical or electronic intrusion into a private home or office—specifically eavesdropping and unauthorised publication of photographs.

It, therefore, proposes that the council should be entrusted with the responsibility of looking into complaints of invasion of privacy and to monitor the press.

The commission notes that two codes of ethics in advertising are in operation: (1) The Indian and Far Eastern Newspaper Society Rules governing accreditation of advertising agencies, and (2) The Advertising Agencies Association code of standards of advertising practice.

The codes had some mechanism for their enforcement, but the machinery consisted of representatives of the press, the advertisers and the advertising agencies, but not of any representatives of the consumers.

The commission wants, therefore, the press council to oversee the observance of advertising codes by the press.

The commission has recommended that the press council chairman or his nominee should be one of the 12 members of the newspaper development commission, which would promote the development of the press as a whole.

It has taken the view that news agencies should be accountable to the public because they served not only newspapers but the general public.

It has, therefore, recommended that the board of directors of every news agency should have a director nominated by the press council chairman.

CSO: 5500/7132

## BRIEFS

OVERSEAS TELECOMMUNICATIONS--New Delhi, April 23 (PTI)--The Overseas Communications Service (OCS) took rapid strides in improving India's telecommunications with the world and increased its profits during 1981-82. According to the annual report of the ministry of communications for the year, the volume of telephone and telex traffic is expected to go up to 29,960 thousand minutes and 32,100 thousand minutes respectively as against 22,239 thousand minutes and 26,276 thousand minutes respectively in the previous year. The volume of photo telegraph service is also likely to go up from 1,177 thousand sq. cms. during the previous year to 1,257 thousand sq. cms during 1981-82. There has been a steady growth in its gross revenues and the net profits. The total gross revenue is expected to increase from Rs 61.88 crores in 1980-81 to Rs 64.75 crores in 1981-82. The net profit is expected to go up from Rs 42.15 crores in 1980-81 to Rs 44.71 crores in 1981-82. [Text] [Bombay THE TIMES OF INDIA in English 24 Apr 82 p 14]

HINDU NEWS SERVICE--United News of India has decided to launch its news service in Indian languages, reports UNI. The news service in Hindi starts from Saturday 1 May. Trial runs of the Hindi service started on Monday. The credit-line on stories in Indian languages will be Univarta. In its report recently submitted to the Government on 5 April, the Second Press Commission has observed: "The development of a first-rate news service in Indian languages brooks no further delay." [Text] [New Delhi PATRIOT in English 27 Apr 82 p 15]

SATELLITE 'IN FINE SHAPE'--Bangalore, May 2 (PTI)--APPLE--India's experimental geostationary communication satellite--is in fine fettle and the performance of all subsystems aboard was normal, ISRO said tonight. The satellite was being used for a minimum of four hours a day for conducting various planned application experiments, ISRO said. The television transmissions had been successfully done through APPLE from the Ahmedabad and Delhi earth stations and they were received at compatible terminals. The computer networking experiment through APPLE had also been conducted and other experiments were in progress. ISRO said station keeping and on orbit operations of the spacecraft were expected to be continued till the end of 1982, depending on APPLE's fuel supply. The utilisation experiments with APPLE involving agencies such as the posts and telegraphs and Doordarshan would be continued during 1982-83. The satellite launched on June 19 last year by the European space agency's Ariane launcher from Kourou in French Guyana, is positioned over 102 degrees east longitude. Being a complex mission, several unforeseen problems were experienced after the launch. But except for the nondeployment of one of the solar panels, they were overcome by the unremitting efforts of the mission team. [Text] [Bombay THE TIMES OF INDIA in English 3 May 82 p 1]

BRIEFS

TELEVISION DEVELOPMENT--Ulaanbaatar, 23 Apr (MONTSAME)--The Seventh MPR 5-Year Plan will be a period of further development of the Mongolian television network and expansion of television broadcasting to the southern and eastern regions. A radio relay line more than 700 kilometers long will be constructed in the eastern aymags. As a result, thousands of rural residents will be able to watch television programs not only in black-and-white but also in color. They will be able to see national, USSR central and "Intervision" television programs. In addition, "Ekran"-type space communications television receiving stations will be built in the MPR in the current 5-year plan. [Ulaanbaatar MONTSAME in Russian 1927 GMT 23 Apr 82 OW]

CSO: 5500/2232

PAKISTAN

BRIEFS

BALUCHISTAN TELECOMMUNICATIONS PROJECTS--Minister of Communications Mohyuddin Baluch announced at a press conference in Quetta today that more than 2,000 telephone lines will be installed in the province and 42 small telephone lines will be set up with 600 lines each by the end of the current fiscal year. Public call offices will also be set up in the rural areas. About 126 new post offices will go into operation by the end of the year. [Karachi Domestic Service in Urdu 1500 GMT 8 May 82 GF]

CSO: 5500/2232

YIN FATANG AT XIZANG TELECOMMUNICATIONS MEETING

HK230808 Lhasa Xizang Regional Service in Mandarin 1130 GMT 22 Apr 82

[Summary] The 12th Xizang regional posts and telecommunications work conference was recently held in Lhasa. Yin Fatang, first secretary of regional CCP committee, and Jiang Cuo, vice chairman of regional people's government, attended the conference and gave speeches. Having summed up experiences, the conference pointed out the following demands and tasks for the construction and management of regional posts and telecommunications work between now and 1985.

The total amount of taxable posts and telecommunications work should increase by 3 percent over that of 1981 and the income of posts and telecommunications work should amount to approximately 3.8 million yuan. To ensure communications between Lhasa and Beijing, a ground satellite station is to be built in Lhasa. To ensure communications within Xizang, networks of long-distance phone lines are to be constructed in five districts in Lhasa municipality between May and June. Telex between Lhasa and Shannan and Rikaze and long-distance phone lines between Lhasa and Changdu, Lhasa and Rikaze, and Shannan and Naqu are to be constructed.

The conference held: We must rely on the leadership of the CCP committees and people's governments at all levels to carry out the construction of posts and telecommunications projects. We must straighten out enterprises and carry out technical renovation in a systematic manner. We must have comprehensive planning, make good use of our capital, strengthen management and adopt scientific measures to improve postal and telecommunications services. The following tasks should be carried out within this year and the next.

1. Construct a Lhasa ground satellite communications station and strive to complete the task before the end of next year.
2. Strive to put 400 direct dial telephones in Changdu into operation within the year.
3. Construct two long-distance phone lines between Xizang and Gansu and between Xizang and Qinghai. Telecommunications systems are to be rearranged into nine lines connecting Lhasa and Beijing, Chengdu, Xian, Lanzhou, Tianjin and Shanghai.
4. Renovate long-distance phone lines between Lhasa and Rikaze and between Jiangzi and Yadong and strive to complete the work by the fourth quarter.
5. Increase the number of runs of the postal service. Postal services from Lhasa to all prefectures should amount to five or six times while those from prefectures to counties should be two to three times. County post offices should strengthen renovation and management work for postal service in the rural areas.
6. Do a good job of training work so as to enhance political consciousness and technical knowledge of the staff and workers.
7. Carry out overall rectification among the existing enterprises, promote democratic management and do a good job of all construction work.



PEOPLE'S REPUBLIC OF CHINA

BRIEFS

BROADCAST STATIONS--According to GUANGMING RIBAO, broadcasting stations have been set up in all of China's municipalities and counties. Seventy-two percent of the production brigades and 65 percent of the production teams have rediffusion facilities. Loudspeakers have been installed in 49 percent of the rural households, totaling approximately 90 million in number. Wire broadcasting is major means of propaganda in the countryside. [Beijing Domestic Service in Mandarin 0900 GMT 11 May 82 OW]

CSO: 5500/2236

# NATIONWIDE TELEVISION NETWORK SOON

Colombo THE ISLAND in English 3 May 82 p 1

[Article by B. C. Perera]

[Text]

The Government-owned Independent Television Network will cover the whole island soon. The Minister of State Mr. Anandatissa de Alwis told 'The Island'.

As a first step its range will be increased from the present limit of 30 miles' radius of Colombo to about 65 miles radius.

The first phase of this programme, the Minister explained started recently with the beginning of the construction work on the transmitting tower and the office complex to house the ITN at Wickremasinghepura, near the country's new capital Sri Jayewardenepura.

Mr. de Alwis, said that ITN would be Rupavahini. "It will be turned into a TV system operating from Sri Lanka's new capital, independent and not in anyway subservient to the Rupavahini", the Minister said.

ITN, according to the Minister, will have a gradual growth financed by its own earned resources.

Mr. Thevis Guruge, the Competent Authority of the ITN explaining the Minister's plan to 'The Island' said that the present transmission mast of the ITN was in a virtual valley and the effective height of the 105-foot tall mast is about 90 feet. The spot where the new mast is now being installed is 120 feet above sea level and the actual mast itself will be 320 feet,

giving the mast an effective height of 420 feet. Although the possible reach of the ITN after the installation of the new mast is 65 miles there would be a "grace" radius of at least 10 to 15 miles, where ITN could be received fairly clearly. After the completion of this mast, viewers both in Puttalam and

Anuradhapura, would be able to receive ITN services "quite clearly".

ITN is also constructing an additional transmitter which would be used as a stand by if the regular transmitter went out of order.

The installation of the transmitter and the construction of building will cost around Rs.10 million, which will be found from ITN's own earnings.

Along with the two transmitters there will be studio facilities and transmitting hall, studio library and ITN offices.

Mr. Guruge explained that the purchasing power of English speaking class was high and they had to be catered to.

According to Mr. Guruge, the Minister's plan to make ITN a strong competitor to Rupavahini would be carried out by connecting the main towns with low powered micro-wave transmitters. ITN hoped to relay its services soon to Nuwara-Eliya, Kandy, Jaffna, Trincomalee, Galle and Matara, where there are concentrations of those who speak English.

MICROWAVE LINK BETWEEN COLOMBO-MADRAS

Colombo DAILY NEWS in English 4 May 82 p 1

[Text] General Sepala Attygalle, Chief Co-ordinating Authority, Ministry of Defence, yesterday inaugurated the new Air Traffic Control Centre at Ratmalana airport by speaking directly to Madras Control Centre on the microwave link that has now been established between the two countries.

General Attygalle said that the establishment of direct speech facilities between Colombo and Madras was a great leap forward in communications and would strengthen air navigation in the region.

"President Jayewardene, under whose ministry the subject of aviation comes has always stressed the need for air safety. The establishment of this centre is a long-felt need" the general added.

He thanked the Resident Representative of UNDP, Mr. Y. Y. Kim who was present, for the gift of this expensive equipment to Sri Lanka under an aid program. The equipment, which is the latest in air traffic control, is valued at U.S. \$2.8 million.

Mr. D. H. S. Athulathmudali, Director, Airports Authority, thanked the technical staff for creating what he called a record by installing the equipment in one week.

Airports Authority Chairman Col. H. B. Wijekoon and the Indian Ambassador in Sri Lanka, Mr. Thomas Abraham, were also present at the inauguration ceremony.

CSO: 5500/5799

## PLAN TO IMPROVE TELEPHONE SYSTEM

Colombo DAILY NEWS in English 5 May 82 p 1

[Text] The Ministry of Posts and Telecommunications is finalising plans to overhaul the country's telephone system at an estimated cost of Rs. 1000 million.

Posts and Telecommunication Minister D. B. Wijetunge told a press conference yesterday that the far reaching changes were to be made with a view to updating and improving the present system.

Explaining the reasons for the changes Mr. Wijetunge said if direct dialling countrywide was made possible much delay and trouble would be eliminated.

The Colombo Central telephone exchange for instance he said has to cope with 2 million calls daily. This 'overload' is what causes delay, cross-connections and frayed tempers.

Replacing the Colombo Central exchange along [as published] is expected to cost Rs 150 million. This exchange serves 14,000 subscribers whose telephone numbers begin with 2 or 3. It has been in service for the past 15 years.

Also to be replaced is the 30-year-old worn out cable system. Work on this is to take place in stages. In Kotte such work is nearing completion. Echelon Square Kollupitiya and Nugegoda exchange areas will next be taken-up.

An additional 21 exchange areas, including Padulla, Chilaw and Kurunegala, are to be brought into the direct dialling network by the end of the year. This would benefit 10,000 new subscribers.

Speaking on the applications for telephones, Mr. Wijetunge said, in Colombo alone ten thousand were on the waiting list. Daily around 500 fresh applications are received. 'This is a big change from the 1970-77 period when people were giving up their phones', he said.

Associated with the Minister at the press-conference was Posts and Telecommunications Secretary Annesly Jayewardene and Telecommunications Director A. Shanmugaraja.

CSO: 5500/5799

VIETNAM

NEW POSTAL, TELEGRAPH PROJECTS, PRODUCTS COMPLETED

Hanoi QUAN DOI NHAN DAN in Vietnamese 6 Apr 82 pp 1, 4

[Article by Nguyen Doan: "Completion of 451 New Projects and Products"]

[Text] Emulating in achieving to greet the Fifth Party Congress, the postal and telegraph sector employed 451 projects and products to develop the use of underutilized network equipment and of equipment in storage to heighten the potential of signal communication so as to serve society better even with the limited capital from the State. The Hanoi-Ho Chi Minh City-Minh Hai wire communications project completed the installation of 14 main stations and opened 66 communications channels linking Hanoi and Danang. This is 2080 kilometers open wire communication project with a capacity for hundreds of lines of carrier wave telephones, standard telephones and teletypes. The equipment and supplies were provided by the postal and telegraph sector from equipment and supplies available in the country, already in networks and stocked in warehouses. Only a very small number of supplemental equipment parts had to be purchased from abroad. In order to develop the effectiveness of the investment, each part of the project was immediately placed into operation upon completion. In 1979, thanks to having installed a crossbar on 40016 telephone poles, the sector could use 24 communication channels between Hanoi and Ho Chi Minh City. In the emulation drive to get the Party Congress, the sector completed the installation of 3 cross bars on the telephone poles between Hanoi and Danang, thus tripling the signal capacity of this line.

In order to use communications equipment more effectively the sector also dismantled a 5000 position automatic telephone switchboard from a small southern city and reinstalled it in Hanoi and solved a series of technical problems so that this set could operate in synchronization with sets of differing standards already in operation in the automatic telephone network in Hanoi, thus doubling the automatic telephone capacity of Hanoi. This switchboard has operated with 100 locals in closed circuit on a trial basis.

Also by thoroughly using the available signal equipment and by rationally reorganizing the network, the Ho Chi Minh City postal and telegraph sector and telecommunications center 3, in spite of the small amount of capital

available, opened a new radio relay link between Ho Chi Minh City and Tay Ninh; telecommunications centers 1 and 3 opened two additional telephone and short wave radio channels between Hanoi and Ho Chi Minh City. The most remarkable product of the postal and telegraph sector in this emulation drive was a gauge manufactured by the Hanoi telegraph station that measures teleprinter operations. Because of this gauge, the precise adjustment of more than 200 teletypes in operation in installations in Hanoi which previously had to be done by hand is now done mechanically, decreasing the time for readjustment from between 4 and 8 hours to about 5 to 10 minutes, increasing the readjustment quality, and decreasing the number of teletyping errors. This gauge has been selected for exhibit at the creative youth fair to be held in Moscow.

The quality of information through posts and telegraph has increased in the emulation drive to greet the Party Congress. Utilization of the Hanoi-Haiphong wire lines has increased by 1 to 10.5 percent. Also, the quantity of delayed long distance calls and of undispached telegrams per day have declined markedly. In February the Hanoi postal and telegraph sector alone handled 47,640 long distance calls and dispatched 271,369 telegrams.

8418

CSO: 5500/5776

VIETNAM

SIGNAL, LIAISON MAIN STATION CONSTRUCTED, PLACED INTO OPERATION

Hanoi NHAN DAN in Vietnamese 5 Apr 82 p 4

[Article: "Signal and Liaison Forces Complete Construction of and Place Main Station 4 into Operation"]

[Text] Aiming at heightening the quality and efficiency of signal communications so as to effectively serve in defending and building the Fatherland, the signal and liaison forces have just completed the construction of and placed Main radio station 4 into operation.

This is a signal project with modern equipment and high technological requirements in planning and building. The branch headquarters concentrated cadres and soldiers with construction experience and skills to participate in the construction; cadres and soldiers of the project detachment and of the 5th Signal Group pledging to emulate and register workdays, workhours and output, struggled to complete the project on time and in compliance with the required quality. During the construction the units, overcoming hardships and shortages and coordinating mechanical with rudimentary means, loaded and unloaded hundreds of tons of machinery, equipment and construction materials, worked continuously in shifts, and had no Sundays off to level the ground, construct more than one hundred square meters of equipment installation building, deal with personnel support activities and construct secondary projects. Members of the youth union of the units, organizing many communist work days and hours, gathered tens of cubic meters of broken and old bricks for the foundation of factories 1 and 2.

8418

CSO: 5500/5776

BRIEFS

BEN TRE WIRED RADIO STATIONS--At present Ben Tre has over 40 basic level wired radio stations with a system of 578 public loudspeakers and nearly 700 family loudspeakers. Many villages, wards, schools, hospitals, etc. have used the wired radio system to propagate the Party's line and policy to the masses.  
[Text] [Hanoi HANOI MOI in Vietnamese 14 Apr 82 p 4]

CSO: 5500/5807



'PRAVDA' NOTES CSSR ROLE IN INTERCOSMOS PROGRAM

PM070853 Moscow PRAVDA in Russian 27 Apr 82 p 5

[Correspondent I. Biryukov dispatch under the rubric "News From the Socialist Countries":  
"Intercosmos Orbits"]

[Text] Prague, 26 Apr -- Prague's higher educational institutions are participating actively in fulfilling the tasks posed by the Intercosmos program. The greatest contributions are being made by scientists at Prague's Charles University and the Czech higher technical college.

They have solved a number of complex problems connected with accelerating the processing of information transmitted to earth by satellite, creating equipment for analyzing X-ray and ultraviolet emissions from stars and manufacturing apparatus designed to measure the Earth's heat loss. Observatories and artificial satellite observation stations have been equipped with lasers developed by Prague physicists from the Czech higher technical college.

Together with their partners from the USSR, GDR, Poland and Hungary, Czechoslovak scientists are now taking part in setting up ground-based space observation stations. CSSR scientists have taken on the task of designing a laser transmitter. In conjunction with a computer, the new equipment will make it possible to determine satellite distances from earth with a precision of up to 10 centimeters over a distance of 10,000 km. Study of their flight trajectory yields important data for science and practice.

CSO: 5500/2232

## BRIEFS

NEW MATANZAS TELEPHONE CENTRAL--Matanzas--In celebration of the anniversary of the proclamation of the socialist character of the Revolution and of the Victory at Giron, a new automatic telephone central with technology from the German Democratic Republic will begin operating Saturday at 2100 hours in this city. The installation of this new plant required an investment of more than 200,000 pesos. Another central of the same type went into operation in July 1981 in the Penas Altas area. Still another is in the initial stages in the Naranjal section where the population has recently increased enormously due to the construction of numerous multi-family dwellings. During the capitalist era, this city had only 1,600 telephone lines in service; now there are 5,000 which is more than triple that number. In spite of the large investments made, the telephone rates remain the same as they were when the Revolution triumphed. The telephone central which goes into operation today serves the eastern part of this city, including the sections of Pueblo Nuevo, La Jaiba, the Camilo Cienfuegos development and part of the seashore. The management of the enterprise has stressed the fact that this new installation does not necessarily mean an immediate increase in telephone service in these areas but it does provide the conditions for such an increase in the future. For now, the new central will eliminate the overload at the Matanzas Centro plant where the work load is far greater than what had been planned for it, and it will also substantially improve the quality of the service rendered present subscribers. This new plant fills the Matanza communications workers with pride. This year they will hold a magnificent celebration of national Communications Workers Day in this province. [Text] [Havana GRANMA in Spanish 17 Apr 82 p 1] 9204

CSO: 5500/2222

IRAN

## MUSAVI INAUGURATES NEW TELEVISION TRANSMITTER

LD202250 Tehran Domestic Service in Persian 1630 GMT 20 May 82

[Text] According to the Central News Unit, a powerful television transmitter was inaugurated this afternoon at Koh-e Mond in a special ceremony attended by Prime Minister Mir-Hoseyn Musavi; Minister of Roads and Transport Nezhad Hoseynian; Nabavi, Majlis deputy from Bushehr; and Hashemi-Rafsanjani, managing director of the Voice and Vision of the Islamic Republic of Iran.

According to this report, the inhabitants of Bushehr Province will not be able to receive Channel One television programs on Channel 12.

During today's ceremony, Prime Minister Musavi paid tribute to the service of engineer 'Ebadi, chief project manager of the Koh-e Mond transmitter.

We draw your attention to a report sent to us by our correspondent:

Prime Minister Mir-Hoseyn Musavi, accompanied by the minister of roads and transport, the managing director of the Voice and Vision of the Islamic Republic of Iran, the imam's representative and Friday imam of Bushehr, and the Majlis deputy from Bushehr, who arrived in Bushehr this morning, toured Bushehr's airbase, Iran's maritime industries, the southern fisheries, [word indistinct] and the Bushehr nuclear powerplant. This afternoon the delegation toured Bushehr's Koh-e Mond television station.

Reporting to the audience, the managing director of the Voice and Vision of the Islamic Republic of Iran said the new transmitter will cover more than 90 percent of Bushehr Province.

The delegation accompanying the prime minister held a meeting this afternoon which lasted more than 2 hours to discuss the problems and issues of Bushehr Province.

According to the Central News Unit, Managing Director of the Voice of Vision of the Islamic Republic of Iran Mohammad Hasehmi-Rafsanjani visited the Voice and Vision center in Bushehr today and reviewed the center's problems and shortages.

In the ceremony to inaugurate the Koh-e Mond television transmitter, the managing director announced that his organization will try to provide the inhabitants of Bushehr Province with the programs transmitted by the second television channel, by installing a microwave link.

CSO: 5500/2236

IRAN

#### BRIEFS

DIRECT TELECOMMUNICATIONS LINKS--JOMHURI-YE ESLAMI's correspondent has reported from the Iran Telecommunications Company that recently direct communication links without the assistance of an operator have been established with the following countries, using the following codes: Singapore 006, Norway 0047, Finland 00358, Denmark 0045, Sweden 0046, Syria 00963, Luxemburg 00352 and Ireland 00353. [Tehran JOMHURI-YE ESLAMI in Persian 3 May 82 p 5 GF]

CSO: 5500/2236

BRIEFS

NEW TV CHANNEL--Mr Abdullah al Nuweis, undersecretary of the Ministry of Information and Culture, has announced that trial transmission from the second channel of Abu Dhabi TV will start on Saturday on UHF-48. It will be a daily three-hour transmission, beginning at 8.00 p.m. The trial period is scheduled to last a couple of months, but, from June 1, the transmission will be extended to cover al-Ain on UHF-35. The eastern region and the islands will also be gradually covered when the necessary booster facilities are completed, he said. It is understood that the second channel, 5, though mainly meant for expatriates as is the trend in the other Gulf states, will not, however, be completely foreign-oriented. The programmes will include Arabic feature films, documentaries, plays and folklore. The announcements will also be in Arabic, with subtitles in English, and vice versa. [Excerpt] [GF131146 Dubayy KHALEEJ TIMES in English 13 May 82 p 3 GF]

CSO: 5500/4721

## FRG MEDIUMWAVE TRANSMITTER TURNED OVER TO RADIO MALI

Bamako L'ESSOR in French 6-7 Mar 82 p 4

[Text] Since Thursday, 25 February, Radio Mali has had a mediumwave and FM transmitter. The official presentation of this transmitter, which is a result of German-Malian cooperation, was made at a ceremony attended by our minister of foreign affairs and international cooperation, Alioune Blondin Beye; Minister of Information and Telecommunications Gakou Fatou Niang; the secretary of state at the Federal Ministry of Economic Cooperation, Konrad Porzner; our ambassador to Bonn, Sekou Sangare; and the former FRG ambassador to Mali; Mr Holtermann.

The first speaker, Konrad Porzner, stressed the importance to our country of acquiring means of communications. He expressed hope that the transmitter which has just been turned over to the Malian Government will contribute to the education and well-being of our people.

Then the advising engineer, Powroslo, praised the cooperation that he and his colleagues had received during the installation of the transmitter. He added that the next step is theoretical and practical training of the operating personnel so that in 1983 the Malians can themselves take over operation.

The minister of information and telecommunications, Mrs Gakou Fatou Niang, underlined the importance of the new transmitter for our socioeconomic development:

This ambitious project is an important step in our continuing struggle for sociocultural and economic development. It was made possible, at a cost of almost 2.7 billion Malian francs, through the generous help of the FRG.

It was because of the many problems caused by the age of our present broadcasting facilities and the inadequacy of our national coverage that the Department of Information and Telecommunications decided to upgrade the transmitters of the national broadcasting.

This project, which includes expansion, modernization and centralization of our broadcasting centers at Kati, was submitted to the FRG in 1979 and reviewed favorably by the KFW [Credit Institution for Reconstruction]. This resulted in the signing of a preliminary loan agreement between the KFW and the Mali Republic. Subsequently, this loan agreement was converted to a gift, thanks to the understanding of the FRG Government and the great generosity of the German people.

The project, which will take 2 years, from 1980 to 1982, to complete, includes the building, the access roads, the antenna bases and the transmitters themselves:

--One 100 kW shortwave transmitter with an omnidirectional shortwave antenna covering a range from 50 kW with a log-periodic antenna pointed north and covering an area of from 500 to 2,500 km;

--Two automatic generating units of 550 kVA each.

In addition there will be a UHF link with a power output of 2 x 300 watts which will not only link the studio with the Kati broadcasting center, but also provide FM coverage for the city of Bamako.

The final acceptance of the building constructed by UDEC-Mali took place in May 1981, and the work of installing the technical equipment, which began in June 1981, is proceeding normally and without problem. In fact, it is thanks to the quality and steady progress of the work that we are able to proceed today with this first phase, the putting into operation of the 100-kW mediumwave transmitter.

Ministers, Excellencies, Ambassadors, this ceremony thus provides one more proof of the success of German-Malian cooperation, whose dynamism and consistency has already been demonstrated on numerous occasions and also in other fields.

As you can see, the broad scope of this cooperation and the special attention which it devotes to the priority objectives of our development program reflect concretely the felicitious feelings of solidarity between our two people and governments.

Therefore, Mr Minister, in the name of the Malian people, in the name of their party, the Democratic Union of Malian People, in the name of Head of State Gen Moussa Traore, I ask you to relay to the FRG people and government the expression of our profound gratitude and our sincere thanks.

9920

CSO: 5500/5754

## MOZAMBIQUE

### BRIEFS

EXPERIMENTAL TELEX OPERATION--The new Maputo telex office will operate on an experimental basis during the month of May. This was announced by the directorate of the Mozambique Telecommunications company. Moreover, all telex subscribers are asked to "maintain their equipment in an operational state, hooked up to the two outlets (network and telegraph)." Final tests will be conducted during this period and service may be interrupted without previous notice. As had been announced last February, the operation of the new telex office will allow a normalization of domestic connections. It is part of the project for the establishment of a national telecommunications network during the eighties. The new electronic digital equipment can connect up to 1260 lines between subscribers and junctions, ensuring automatic service connection for more than one million subscribers in the entire world. The digital telex equipment will offer the most advanced technology and will make available to subscribers a range of additional services, such as notification of the length of calls. The present project for the establishment of a new national telecommunications network is aimed at improving existing modern systems or replacing old and outdated ones. [Text] [Maputo NOTICIAS in Portuguese 29 Apr 82 p 10]

RADIO SHORT-CIRCUIT--A breakdown has affected broadcasting by Radio Mozambique since last Saturday [24 April]. Operation resumed yesterday [26 April] at about 1530 hours on an experimental basis on a 407 meter band but the broadcast was short-lived and the radio fell silent again at 1630 hours. The technical director of Radio Mozambique stated that the irregular broadcasting noted during Saturday and Sunday was due to a short-circuit that affected power to the broadcasting station. Through the efforts of a number of technicians, broadcasting resumed yesterday on an experimental basis, but the heavy burden on the transformer caused by a current slightly higher than normal broke down the system again. [Excerpt] [Maputo NOTICIAS in Portuguese 27 Apr 82 p 2]

CSO: 5500/5806



## NIGERIA

### BRIEFS

SOLAR ENERGY FOR TELECOMMUNICATIONS--Plans have reached an advanced stage to introduce solar energy into the country's telecommunications system. This is to minimize maintenance cost and ensure efficient and effective telephone system throughout the country. The minister of communications, Mr Audu Ogbe, disclosed this today in Lagos in an interview with a Radio Nigeria correspondent. Mr Ogbe explained that the operation of the new system will enable subscribers to make calls without the assistance of operators. He said that the establishment of the new system will cost less and that breakdown of generators will not be as regular as with the old system. Also today Mr Ogbe received the Swedish trade delegation on tour of Nigeria. He urged the delegation to establish a telecommunications company in the country to manufacture telephone materials. [Text] [AB191546 Lagos Domestic Service in English 1500 GMT 19 May 82]

CSO: 5500/5804

SOUTH AFRICA

BRIEFS

TV EXPANSION--TV 2 and TV 3 transmitter in Bloemfontein and Kimberley will start transmitting full-time from May 24. The first month of operation will be considered as a test period. The normal TV 2 and TV3 programmes will be broadcast, but transmissions might be interrupted during this period without warning or apology, to carry out necessary adjustments or repairs, SABC announced in Johannesburg yesterday.--SAPA [Text] [Johannesburg THE CITIZEN in English 14 May 82 p 9]

CSO: 5500/5797

## USSR SATELLITE COMMUNICATIONS DESCRIBED

PM101351 Moscow PRAVDA in Russian 3 May 82 p 3

[Article by G. Markelov and M. Fedorov, doctors of technical sciences: "Communications Through Space"]

[Text] Cosmonautics exerts a tremendous influence on various spheres of science and the national economy, but its influence on the means of receiving and transmitting information is especially profound. Lines of communication, in which artificial earth satellites are used, are a fundamentally new development in this matter. A satellite receives radio signals from a ground station and relays them, or first amplifies them and then transmits them, to another station. This ensures the possibility for a considerable number of stations located great distances apart to operate simultaneously via a single satellite.

The orbit of the relay satellite is selected taking into account the required zone to be served during a given time. The circular geostationary orbit -- at an altitude of 36,000 km above the earth's surface and in the same plane as the equator -- is especially convenient. The satellite is stationary in relation to an observer on the ground and over 1/3 of our planet's surface falls within its radio footprint.

In recent years communications via artificial earth satellites have assumed a primary position among other types of electronic communication. This can be attributed in particular to the great throughput capacity of communication lines and their high efficiency in transmitting information over large distances, and also to the fact that the potential for effecting global (worldwide) communication has emerged and so forth.

The creation of a new relay satellite is a great event. Since 1978 the family of Molniya, Raduga and Ekran satellites in the Soviet Union has been supplemented with Gorizont-series apparatus.

The Gorizont geostationary satellite is a multipurpose one. It is used for communications, broadcasting and control and makes it possible to considerably increase efficiency in transmitting information in the interests of the country's national economy and international cooperation.

Gorizont fulfills some of its "duties" in conjunction with the network of Orbita ground stations, whose potential has now considerably increased. The relaying of the two central television programs is ensured taking account of the time shift across the country's territory. As well as television broadcasting, satellite communications channels are available for radio broadcasting, telephone conversations and transmitting newspaper matrices.

Relaying signals to Orbita stations takes place via several wide-band "channels" [stvol] of the receiving and transmitting apparatus of the Gorizont satellite. It is possible to transmit one television program or effect about 1,000 telephone conversations simultaneously via each of these "channels."

Gorizont considerably increases the volume of information in the Intersputnik system. International telephone and telegraph communications and the exchange of television and radio broadcasts between different countries have been organized.

The Gorizont satellites enable the zone of operation of the Intersputnik system to be extended. It is possible via these to effect communication between our motherland's capital and all populated continents of the globe. The ranks of the Intersputnik organization have also been swelled. Recently Afghanistan, Vietnam, Laos, the PDRY and Syria have become members. Over 20 countries, which are not members of the organization, make use of its services. With the aid of the Gorizont satellites, over 30 countries received a total of about 2,000 hours of broadcasts from Moscow during the 1980 Olympics.

Gorizont also acts in collaboration with the Moskva television system which used comparatively simple and cheap ground receiving stations. The Moskva and Ekran systems enable television programs to be received over the country's entire territory.

The use of the Orbita stations on their own for these purposes is only justified economically for major population centers. As for the Ekran system, it is highly efficient and is being successfully exploited in the cities and villages of Siberia, the far north and partially in the Far East. However, by virtue of the restrictions caused by possible interference to the ground communication facilities of neighboring countries using same radio frequency range, it is not possible to extend the zone of operation of the Ekran system to other regions of our country.

In order to work with the Moskva stations, the Gorizont satellite has as part of its onboard relay apparatus a special enhanced-power "channel" and a narrow-directional antenna. The output density on the earth's surface thus achieved enables television signals to be received simultaneously on small antennas (reflector diameter -- 2.5 meters). Moreover, thanks to special methods of processing signals, interference to ground services is eliminated.

In March 1982 a modernized version of the Gorizont satellite, which tackles a number of additional satellite communication tasks, was put into orbit. On board, as well as the six-channel receiving and transmitting device designed for the Orbita, Intersputnik and Moskva systems, extra relayers were installed which have the international registration indices Luch and Volna. They will provide satellite communications for marine ships and for aircraft. In particular, this will provide the opportunity to increase the efficiency of the control of the maritime trade fleet, reduce sailing time and increase the safety of navigation on the world's oceans. Soviet industry has already begun to produce ship's apparatus for communications via Gorizont.

The satellite's creators face a number of scientific and technical problems during the development process. For example, it proved difficult to achieve the electromagnetic compatibility of diverse onboard relay apparatus during simultaneous operation on different radio frequency bands and to ensure a high degree of reliability together with a long operating life.

Standardized designs of onboard systems and units of the Baduga and Ekran satellites are being used on the Gorizont, taking account of the achievements of space technology that have occurred in recent years.

The Gorizont's dynamic design layout ensures its triaxial orientation in space with an accuracy to within a few angular minutes, the longitudinal axis of the satellite being constantly directed toward earth.

Affixed to the end of the instrument bay, whose axis coincides with the satellite's longitudinal axis, is the antenna unit. It comprises waveguide circuits and a bank of antennas. By switching some of them, it is possible to change the zone served by individual relay channels.

Two panels of solar-activated photoelectric cells are linked with the instrument bay by monaxial electric actuators. The rotation of the panels around the satellite's lateral axis is effected at a speed that approximates that of the orbit, which ensures their constant orientation toward the sun. At the same time the actuators transmit electricity from the panels to the onboard apparatus.

The relay device on board is located with the instruments of the control and measurement system in a bay which is cylindrical in shape. Here, there is also a bank of chemical batteries, which feeds the apparatus in the shaded section of the orbit during the spring-fall period.

The Gorizont was put into orbit by the multistage proton carrier rocket with a D-rocket unit as the final stage.

The creation of the multifunction Gorizont relay satellite is a major contribution to resolving the task set by the 26th CPSU Congress: to make wide use of earth satellites to organize multiprogram television and radio broadcasting, telephone communications with remote regions and the transmission of pages of central newspapers by phototelegraphy. Soviet science and technology have shown once again the great potential of space technology which promotes mankind's progress.

CSO: 5500/2232

## BRIEFS

NEW KAZAKHSTAN TV RELAY STATION--Kustanay--The most remote sovkhos in the oblast, the Bestauskiy Sovkhoz, has been brought into the zone of reliable reception of central television programs. A relay station has come into operation here. Now, not only the virgin-land workers who live on the central farm but also the stockmen who are to be found all year round out on the steppe with their flocks can watch programs from the capital. In the major grain-producing area of Kazakhstan a comprehensive program of expanding the rural television audience is being successfully implemented. [Text] [PM031537 Moscow SEKSKAYA ZHIZN in Russian 25 Apr 82 p 4]

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SWEDEN

# FIBER OPTICS INTRODUCED INTO SWEDISH TELEPHONE NETWORK

Stockholm NY TEKNIK in Swedish 18 Mar 82 p 8

[Article by Miki Agerberg]

[Text] In Sweden fiber optics has taken its first giant step from a vision of the future to an everyday technology. The various telephone stations in Stockholm will be connected with the new glass fiber cable. The same is true in Goteborg and Malmo. The Telecommunications Service has just purchased the cable and the first ones will be installed this year.

Before now in Sweden the new glass fiber optics has been used only in tests and in extremely rare applications, but now for the first time it has competed successfully with older cable types and become a commercially feasible technology.

"This is a breakthrough for fiber optics in Sweden," Viesturs Vucins of LM Ericsson said.

LM Ericsson will produce most of the new cable through its subsidiary Sieverts Kabelverk. A small portion of the order went to Nippon Electric of Japan.

The glass fiber cables will be used to connect the various telephone stations within Sweden's three largest cities. At the same time that the new computerized AXE exchanges are installed at the stations, the old cables will be replaced with glass fiber cables.

The initial phase of this project was a field test in Stockholm. For several years the telephone stations in Fredhall and Appelviken have been connected by glass fiber cables.

"Connecting telephone stations within large cities requires great capacity and the distances are rather short. The glass fiber cables are commercially competitive under these conditions," said Mattias Gronberg, head of transmission technology at the Telecommunications Service.

The glass fiber cables are easy to install. Telephone conversations and other information are transmitted as light signals in fibers that are no thicker than hair.

Six to eight such fibers enclosed in a cable 1 cm in diameter are sufficient to handle all telephone conversations and data transmissions between two large telephone stations.

By way of comparison, a conventional cable between two large stations is about 10 cm in diameter.

In England the government recently decided to make a major investment in fiber optics. All large cities will be connected with glass fiber cables and they will be used primarily for cable television (see separate article on p 8).

Is this what we may expect in Sweden in the future?

It appears today that glass fiber cables connecting the Swedish cities with one another would be much too expensive, according to Mattias Gronberg of the Telecommunications Service.

In England the economic conditions are much more favorable, since the cities are larger and closer together. There is also available space for stringing the cables.

There are, on the other hand, advanced plans for using glass fiber cable for local cable television within the cities in Sweden. The Telecommunications Service plans to receive programs from foreign television satellites with central parabolic antennas and distribute them to homes by way of cable TV (see NY TEKNIK 1982: 6).

Within the next few years the first cable TV experiment with fiber optics will begin in a Swedish community.

Further in the future, a fiber optic network may be developed that could be used for many different types of communication: telephone, cable TV, teledata, etc. That would mean major changes in Swedish homes.

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UNITED KINGDOM

BRIEFS

WORLD RECORD IN FIBER OPTICS-- Researchers at Telecom, the British telecommunications agency, believe it is possible to use glass fiber cables over a distance of 30 km without amplifiers. The researchers said that this was a world record--twice the previous possible distance. It was previously believed in England that intermediate amplifiers would be needed every 18 km, but now a 30 km loop will be constructed for test use under realistic conditions. If this technique meets expectations, the researchers will have reduced light losses in the fibers considerably. Light losses mean amplifier stations must be close together, which makes the use of glass fiber cables more expensive. Now the British believe that it will be possible to install a fiber cable across the channel without a single intermediate amplifier. [Text] [Stockholm NY TEKNIK in Swedish 4 Mar 82 p 18] 9336

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